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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/698,556

11/03/2003

Kaoru Okitaka

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04/03/2009

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EXAMINER

KIM, EUNHEE

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

04/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/698,556             |  | OKITAKA, KAORU      |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Eunhee Kim             |  | 2123                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
       Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
       Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/29/2009 has been entered.
2. Claims 1 is presented for examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. (US 6,704, 693) in view of Yu et al. (US 6,096,088).

Fan et al. teaches a geometric model conversion method of converting a three-dimensional CAD geometric analytical model of a thin-walled structure into a two-dimensional analytical model (Col. 2 lines 12-67), comprising;

a step of generating a plurality of tetrahedral solid elements each of which has a shape of a triangular pyramid having an apex and a base (Col. 1 lines 40-45, Col. 2 lines 12-40) and a single-layered structure in a plate thickness direction, by dividing an input three-dimensional

CAD geometric analytical model which has a thin-walled structure (Col. 2 lines 12-67, Figures 2 and 3b and the description), such that the base of the triangular pyramid is placed on one surface of the thin-walled structure and the apex of the triangular pyramid is placed on another surface of the thin walled structure opposing to the one surface (Col. 2 lines 12-40),

a step of generating intermediate nodes of sides that extend in a direction of plate thickness in each tetrahedral solid element having the shape of the triangular pyramid, (Col. 1 lines 40-64, Col. 7 lines 61-67, Col. 8 lines 1-4),

a step of connecting the intermediate nodes to generate a plurality of triangular shell elements elements as the two-dimensional analytical model (Fig. 3, 4 & 8, Col. 6 lines 41-49, Col. 7 lines 51-60), and

a step of executing an injection molding analysis with respect to each shell element of the two-dimensional analytical model generated in said connecting step and outputting results of the injection molding analysis (Abstract, Col. 1 lines 15-22).

Fan et al. does not explicitly teach a single layered structure in the plate thickness direction.

Yu et al. teaches a single layered structure in the plate thickness direction (Figure 7B).

Fen et al. and Yu et al. are analogous art because they are both related to a structural analysis.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include a single layered structure of Yu et al., with the method for the structural analysis of component of Fan et al. because using a single layered structure is a well-

known process to a skilled artisan in a method of structural analysis of component. Yu et al. teaches an improved system that ensures fidelity and reduces the computation time on the model (Col. 1 lines 30-55).

### ***Response to Arguments***

4. Applicant's arguments filed 01/29/2009 have been fully considered but they are not persuasive.

Applicant has argued that:

The primary citation to Fan provides a method for generating a two-dimensional model. Fan's structural analysis method, however, is different and more complicated than Applicant's claimed conversion method. In Fan's method, a half thickness (0.5t) is ascribed to shell elements, requiring two plates each of a half thickness to be matched and bonded (or connected). This conversion method is significantly different--and more complex--than Applicant's claimed conversion method of generating a two-dimensional analytical model by generating a plurality of triangular pyramids in a plate thickness direction and forming a plurality of triangular shell elements by connecting intermediate nodes of the triangular pyramids in the plate thickness direction.

The Examiner disagrees. Fan teaches solid models which are divided to solid elements, where solid elements are usually tetrahedral or hexahedra which has a shape of a triangular pyramid (Col. 1 lines 40-45). Further, MPEP 904.01 states that "During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification." Therefore, Examiner has made broadest reasonable interpretation that connecting "intermediate nodes" is "a half thickness (0.5t) is ascribed to shell elements, requiring two plates each of a half thickness to be matched and bonded (or connected)" (Col. 7 lines 59-67, Col. 8 lines 1-14).

*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunhee Kim whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eunhee Kim/  
Examiner, Art Unit 2123

/Paul L Rodriguez/  
Supervisory Patent Examiner, Art Unit 2123